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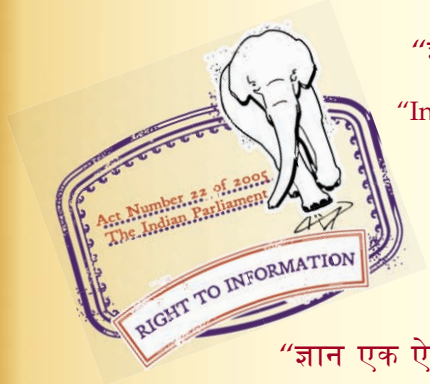

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Indian Standard

SPECIFICATION FOR ALUMINIUM BULB ANGLES FOR MARINE APPLICATION

(First Revision)

UDC 669·71-423 : 629·12

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

January 1988

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SPECIFICATION FOR ALUMINIUM BULB ANGLES FOR MARINE APPLICATION

(First Revision)

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Indian Standard

SPECIFICATION FOR ALUMINIUM BULB ANGLES FOR MARINE APPLICATION

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 24 June 1987, after the draft finalized by the Structural Sections Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Aluminium, because of its lightness, strength and better resistance to atmospheric corrosion, is extensively used in marine application.

0.3 A large number of variety of aluminium sections are being produced in the country. In order to standardize these sections for their economic production, the Sectional Committee had formulated an Indian Standard series covering angles, channels, beams and tee sections for structural use and other applications, and bulb angles, bulb plates and tee bars for use in marine application. Other standards on aluminium sections for marine applications are:

a) IS : 6475-1987 Specification for aluminium tee bars for marine application (*first revision*), and

b) IS : 6476-1987 Specification for aluminium bulb plates for marine application (*first revision*).

0.4 This Indian Standard was first formulated in 1971. In this revision, alloys with new designations as covered in IS : 733-1983* have been used.

0.5 In the preparation of this standard, the Sectional Committee kept in view the manufacturing and trade practices followed in the country in this field. Assistance has also been derived from ISO 1175-1976 Shipbuilding — Dimensions and sectional properties of aluminium alloy sections for marine use.

*Specification for wrought aluminium and aluminium alloy bars, rods and sections (for general engineering purposes) (*third revision*).

0.6 IS : 8147-1976* covers provisions for the design of structures (except bridges and pressure vessels) using aluminium alloys.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers material, dimensions and sectional properties of aluminium bulb angles for marine applications.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 *Y-Y* Axis — A line parallel to the axis of web and passing through the centre of gravity of the profile of the section.

2.2 *X-X* Axis — A line passing through the centre of gravity of the profile of the section, and at right angles to the *Y-Y* axis.

3. SYMBOLS

3.1 Letter symbols used in this standard as indicated in the figure appearing along with Table 1 are as follows:

a = sectional area (without plate);

M = mass of the sectional per unit length (without plate),

O = centre of gravity;

e_x = distance of centre of gravity of assembly from the outer face of the bulb;

I_x = moment of inertia about X-X axis;

$Z_x = \frac{I_x}{e_x}$ = section modulus;

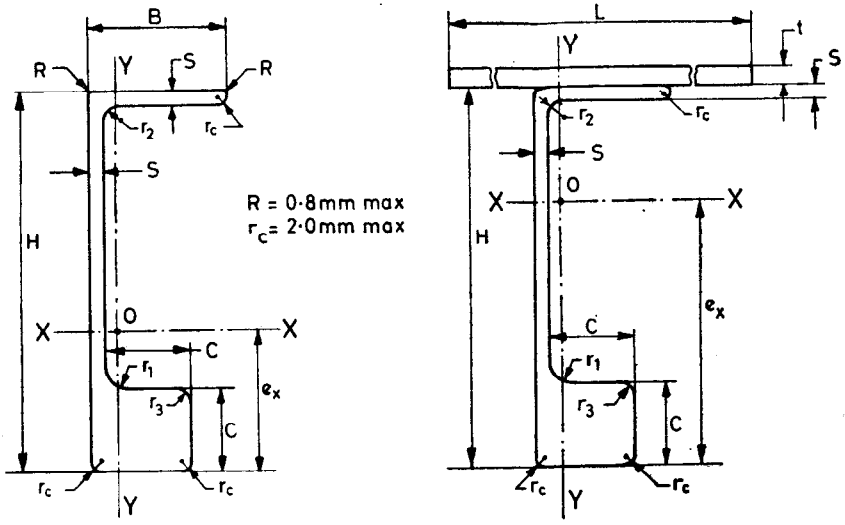
t = plate thickness — 5, 10 or 15 mm; and

L = width of plate = 40 t.

*Code of practice for use of aluminium alloys in structures.
†Rules for rounding off numerical values (*revised*).

TABLE 1 INDIAN STANDARD ALUMINIUM BULB ANGLES

(*Clauses* 3.1 *and* 5.1)



Designation	Dimensions							Mass* (Without Plate)	Sectional Properties											
									Section Without Plate			Section with Plate								
												$L \times t$ (200 × 5 mm)			$L \times t$ (400 × 10 mm)			$L \times t$ (600 × 15 mm)		
	H	B	C	S	r_1	r_2	r_3	M	a	e_x	I_x	e_x	I_x	Z_x	e_x	I_x	Z_x	e_x	I_x	Z_x
	mm	mm	mm	mm	mm	mm	mm	kg/m	cm²	cm	cm⁴	cm	cm⁴	cm³	cm	cm⁴	cm³	cm	cm⁴	cm³
AMBA 30	30	27	8	3·0	4·5	3·0	3·0	0·603	2·28	1·63	2·74	2·95	7·83	2·65	3·40	13·6	4·01	3·70	29·6	8·01
AMBA 40	40	27	10	3·0	4·5	3·0	3·0	0·778	2·94	1·95	6·36	3·73	18·6	4·98	4·33	27·4	6·35	4·66	45·5	9·76
AMBA 50	50	27	12	3·0	4·5	3·0	3·0	0·974	3·68	2·22	12·2	4·44	37·0	8·33	5·22	51·6	9·88	5·61	72·9	13·0
AMBA 60	60	27	14	3·0	4·5	3·0	3·0	1·19	4·50	2·46	20·6	5·08	65·3	12·9	6·09	89·8	14·7	6·55	116	17·8
AMBA 70	70	27	16	3·0	4·5	3·0	3·0	1·44	5·40	2·67	32·1	5·65	106	18·7	6·93	146	21·1	7·46	180	24·1
AMBA 80	80	32	18	3·5	5·5	3·5	3·0	1·88	7·08	3·12	56·2	6·13	165	27·0	7·69	233	30·3	8·34	281	33·7
AMBA 90	90	32	20	3·5	5·5	3·5	3·0	2·17	8·19	3·32	79·0	6·58	237	36·1	8·45	342	40·5	9·21	401	44·1
AMBA 100	100	36	22	4·0	6·0	4·0	4·0	2·70	10·2	3·76	123	6·98	336	48·1	9·15	495	54·2	10·0	587	58·4
AMBA 110	110	41	24	4·5	7·0	4·5	4·0	3·30	12·4	4·21	185	7·35	460	62·6	9·77	693	70·9	10·8	823	76·0
AMBA 120	120	45	26	5·0	7·5	5·0	4·0	3·94	14·9	4·64	265	7·70	612	79·4	10·4	938	90·5	11·6	1 120	96·7
AMBA 130	130	50	28	5·5	8·5	5·5	4·0	4·66	17·6	5·09	372	8·05	797	98·9	10·9	1 239	113	12·3	1 490	121
AMBA 140	140	54	30	6·0	9·0	6·0	4·0	5·42	20·5	5·52	505	8·39	1 020	121	11·5	1 599	139	13·0	1 940	149
AMBA 150	150	54	32	6·0	9·0	6·0	4·5	5·91	22·3	5·72	617	8·67	1 240	143	12·0	1 990	166	13·8	2 430	177

*Based on a density of 25·6 g/cm³.

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4. DESIGNATION

4.1 Aluminium bulb angle sections shall be designated as *AMBA* followed by depth of the section, for example, AMBA 80.

5. DIMENSIONS AND SECTIONAL PROPERTIES

5.1 Dimensions and mass of aluminium bulb angles shall be as given in Table 1. For convenience of reference, sectional properties are also given in Table 1.

5.2 Dimensional tolerances for the sections shall be as specified in IS : 3936-1981*.

6. MATERIAL

6.1 Aluminium sections covered in this standard shall be manufactured from alloys 53000, 54300 and 64430 in appropriate temper.

6.1.1 Aluminium alloys and temper selected shall conform to the provisions of IS : 733-1983†.

7. MARKING

7.1 Each lot/bundle of aluminium bulb angles shall be clearly marked with designation, alloy and temper, manufacturer's name and lot number/year of manufacture.

7.2 Bulb angles may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or porcessors may be obtained from the Bureau of Indian Standards.

*Dimensions for wrought aluminium and aluminium alloys, bars, rods and sections (*first revision*).

†Specification for wrought aluminium and aluminium alloy bars, rods and sections (for general engineering purposes) (*third revision*).

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